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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,750	03/27/2001	Geun Sig Cha	01-219	3998

7590

02/26/2003

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EXAMINER

TUNG, TA HSUNG

ART UNIT

PAPER NUMBER

1753

DATE MAILED: 02/26/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,750

Applicant(s)

CHA BTAL

Examiner

T. TUNG

Group Art Unit

1753

Paper No. 7

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 12-30-02

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 3-7, 10-18 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 3-7, 10-18 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other: _____

Office Action Summary

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Claims 3-7, 16, 17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The disclosure with respect to the embodiment recited in independent claim 16 is still considered to be inadequate. It is not clear what is a “line of micro capillary” or how it is formed. If figure 1 is drawn to this embodiment, liquid junction appears to be a porous plug. Where is this “line of micro capillary” in this figure? Is the capillary the entire plug 7 or is it the channels within the porous plug? What size is a “micro capillary”?

The discussion at page 13, lines 5-11 of the specification is not considered to be adequate. The passage appears to suggest that the junction can be any number of devices including thread, fiber, filter paper, etc. Where is the “line” in these devices, and are these devices embraced by the claim language “line of micro capillary” (claim 16, last line)?

Claims 3-7, 16, 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The expression “a line of micro capillary” (e.g. claim 16, last line) is not understood, as discussed previously.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless -

Claims 3-6, 16, 17 are rejected under 35 U.S.C. 102(a) as being anticipated by Suzuki etal.

Suzuki has been discussed in the precious Office action. The liquid junction in figure 2(b) or figure 3 of Suzuki can be considered to be "a line of micro capillary" as best understood. Note that in figure 2(b) the liquid junction is a line on the layer that supports the liquid junction. In figure 3, the liquid junction in the polyimide layer is presumably a porous body, which may constitute "a line of micro capillary". Or, the line leading from the porous body to the end tip of the polyimide layer exposed to a sample can be "a line of micro capillary".

Applicant's argument merely states that the prior art does not teach, disclose or suggest the particular features of claims 16 and 17 (see the paragraph connecting pages 6 and 7 of the Dec. 30, 2002 response).

This argument is totally non-persuasive in that it fails to point out specifically how applicant's claim language distinguishes from the prior art.

Claims 3-6, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki etal in view of Ingruber 2,846,386 or Leonard etal 3,264,205.

If somehow Suzuki were construed as not to disclose a capillary liquid junction, applicant's claims differ in that respect.

Ingruber discloses a reference electrode with a capillary liquid junction 15. See col. 2, line 22. Leonard discloses a liquid junction comprising a plurality of capillary passages. See col. 2,

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line 50. It would have been obvious for Suzuki to adopt the capillary liquid junction of Ingruber or Leonard, since a capillary is among a number of well-known liquid junction devices and would be functioning in that capacity whether the electrode is of a planar or rod configuration.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al, with or without Ingruber or Leonard et al, in view of Kotani 4,857,166.

This claim differs by calling for the electrode substrate to comprise a polyester material.

As discussed in the previous Office action, Kotani discloses an electrode substrate F of polyethylene terephthalate, which is a polyester. See col. 7, line 18. It would have been obvious for Suzuki to adopt a terephthalate substrate in view of Kotani, since terephthalate is an inert, inexpensive material that is also transparent. Transparency would permit inspection of the electrode's insides without disassembling the electrode.

Claims 10, 12-15, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotani et al in view of Neti et al 4,002,547.

Both references have been previously discussed in the previous Office action. It would have been obvious for Kotani to make at least a portion of the support housing also as a liquid junction device in view of Neti. Three advantages are evident from this modification. One, a large junction area is provided so as to minimize any clogging problem, as discussed at col. 4, lines 29-32 of Neti. Two, a single material construction (one without a junction device of a second material) would facilitate manufacturing. Three, elimination of any thermal stress problem caused by difference in the coefficients of expansion of differing materials.

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Applicant argues that Neti does not relate to a planar electrode.

That argument is not persuasive. The configuration of the electrode is totally unrelated to the issue of the particular junction structure. One of ordinary skill in the art would fully expect that the housing/liquid junction structure of Neti to be applicable to an electrode of any configuration.

Applicant also argues that Neti does not disclose the combination of a plate, an insulating membrane, etc. as recited in the instant claims.

This argument is also not persuasive. The argument appears to be nothing more than a statement that Neti does not anticipate applicant's claims under 35 USC 102. The examiner concedes that to be the case, but the rejection is under 35 USC 103 and Neti is applied here as a secondary reference only for the feature of the housing/liquid junction structure. There is no requirement that a secondary references should have all the features recited in a claim in question. Neti is probably not the same as Kotani's or applicant's device in other aspects as well, but any such difference is irrelevant.

Applicant further argues that Neti does not disclose his liquid junction membrane to be of a different material as the electrode support plate.

This argument is further not persuasive. Neti does not disclose a support plate. Thus, it can hardly show a plate of a different material as the liquid junction membrane. Also, since the Kotani support plate can be made of a material other than polytetrafluoroethylene, incorporating the polytetrafluoroethylene liquid junction membrane into the Kotani electrode would result in the

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membrane being of a different material from the support plate. Further, applicant has not made any showing that a difference in the materials of these two components would obtain any unexpected result.

Applicant finally argues that Neti uses a polytetrafluoroethylene membrane for its liquid junction, while the present invention uses a cellulose nitrate membrane.

This argument is also not persuasive. First, none of the claims in this rejection even recites the liquid junction membrane to be made of cellulose nitrate or any other specific material. Second, both polytetrafluoroethylene and cellulose nitrate are polymeric membranes that are known to be capable of serving as a liquid junction material. Applicant certainly has not established any unexpected result in selecting one over the other.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kotani in view of Neti et al and Kater et al 3,498,899.

This claim further differs by calling for the liquid junction membrane to be of cellulose nitrate.

Kater, as discussed in the previous Office action, discloses cellulose nitrate to be an old liquid junction material. See col. 3, line 8. It would have been obvious for Kotani to use a cellulose nitrate membrane liquid junction, since the incorporation of a known feature from analogous prior art, functioning in a totally expected manner, is within the skill of the art.

Claims 10, 12, 13, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cranny et al in view of Neti et al.

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Both Cranny and Neti have been discussed in the preceding Office action. It would have been obvious to modify the reference electrode shown in figure 1 of Cranny by replacing the top sealant layer with a liquid junction membrane, which would then serve both as a sealant housing layer and a liquid junction, in view of Neti. The advantages of such a modification have been set forth previously in the rejection of Kotani in view of Neti and are similarly applicable here.

The arguments here are presumably the same as those made against the rejection of Kotani in view of Neti, and are similarly non-persuasive.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cranny et al in view of Neti et al and Kater et al.

This claim further differs by calling for the liquid junction membrane to comprise cellulose nitrate. As discussed before, that is rendered obvious by Kater.

Claims 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cranny et al in view of Neti et al and Kotani.

These claims further differ by calling for a gelled internal electrolyte for the electrode.

As discussed in the preceding Office action, Kotani discloses a gelled internal electrolyte for a reference electrode. See col. 5, lines 31-47. It would have been obvious for Cranny to adopt a gelled internal electrolyte in view of Kotani, since an immobilized electrolyte is position-insensitive and minimizes electrolyte solution loss.

Claims 3, 4, 16, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cranny et al in view of Ingruber, Leonard et al or Suzuki et al.

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These claims differ by calling for the liquid junction to be a capillary.

As discussed before, Ingruber (element 15 of figure 1), Leonard (col. 4, line 50) or Suzuki (figure 2(b)) discloses a capillary liquid junction. It would have been obvious for Cranny to make the hydration port liquid junction device of figure 1 a capillary in view of the secondary references, since the incorporation of a known feature from analogous prior art, functioning in a totally expected manner, is within the skill of the art.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cranny et al in view of Ingruber, Leonard et al or Suzuki and Kotani.

These claims further differ by calling for a gelled internal electrolyte. As discussed before, that is rendered obvious by Kotani.

In regard to claim 7, Kotani also discloses a support plate made of terephthalate, which is a polyester (see col. 7, line 18).

The new objections to the claims under 35 USC 112 are prompted by applicant's new claims. Whatever changes made in the prior art rejections are prompted by applicant's new claim wording eliminating the Markush language in original claim 1 setting forth the various liquid junction devices.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

The examiner can be reached at 703-308-3329. His supervisor Nam Nugyen can be reached at 703-308-3322. Any general inquiry should be directed to the receptionist at 703-308-0661. A fax number for TC 1700 is 703-872-9311.



Ta Tung

Primary Examiner

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